

Mitesh Agarwal

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EDUCATION

North Carolina State University, Raleigh, NC | *Master of Computer Science* August 2023 - May 2025
Courses: Software Engineering, Design & Analysis of Algorithms, Object-Oriented Design & Development *GPA: 3.89/4.0*

University of Mumbai, India | *Bachelor of Engineering in Information Technology* August 2017 - May 2021
Courses: Computer Networks, Database Management Systems, Deep Learning, Algorithms *GPA: 9.32/10.0*

WORK EXPERIENCE

NC State University | *Software Engineer* | Raleigh, NC May 2025 - Present

- Engineered a full-stack, cloud-native application enabling researchers to upload, process, and label sample images for training datasets, improving data preparation efficiency by **40%**.
- Built and **optimized** a scalable **serverless architecture** with **AWS Lambda** and **S3** for handling large compressed image files, reducing data transfer failures, and cutting processing time by **35%**.

Fathom Science, Inc | *Software Engineer Intern* | Raleigh, NC May 2024 - August 2024

- Spearheaded backend development of **Spring Boot REST** APIs serving marine data, reducing manual data retrieval time by **50%** and enabling integration with external research and modeling tools on **AWS EC2**.
- Developed a **React.js** dashboard consuming these APIs with dynamic filters and interactive maps, improving data accessibility, and cutting load times by **60%**.
- Integrated Spring Security with **JWT** authentication to protect the APIs, and collaborated with **DevOps** to manage credentials using HashiCorp **Vault**, cutting credentials misconfigurations by **40%**.

Capgemini | *Software Engineer* | Mumbai, India June 2021 - July 2023

- Designed and optimized REST APIs for telecom data systems, improving customer usage and billing query response times by **40%** through **Redis caching** and database indexing.
- Automated legacy batch-processing workflows by building **AWS Glue** and **EMR** pipelines, enabling near real-time reporting for **1M+** subscriber records and cutting data availability delays from 24 hours to under 2 hours (**90% faster access**).
- Partnered with DevOps teams to containerize applications with **Docker**, while implementing **Jenkins CI/CD** pipelines, accelerating deployment frequency by **5x**, and reducing release related issues by **25%**.
- Optimized **on-call production** support for APIs and AWS cloud services, diagnosing telecom data ingestion issues, and resolving incidents that reduced system downtime **by 30%** through **Splunk** monitoring.

SKILLS

Programming Languages : Python, Java, C++, JavaScript, TypeScript, SQL, GoLang

Frameworks & DB : Node.js, React.js, Express.js, Spring Boot, Django, FastAPI, MongoDB, MySQL, PostgreSQL, Redis

Tools : Linux, Postman, Docker, Jenkins, Github, Kubernetes, Putty, Jira, Splunk

Cloud Technologies : AWS (S3, Lambda, Glue, EC2, DynamoDB, EMR, RDS, CloudWatch, Route 53)

Cloud Certifications : Microsoft Certified Azure and Data Fundamental (AZ-900 and DP-900), Google Cloud Digital Leader

PROJECTS

NutriQuest (Full Stack Web Development) | *React.js, TypeScript, MongoDB, Express.js, Gemini LLM*

- Led the development of a cloud-hosted **MERN** application integrating **Gemini LLM** for barcode-based food recognition, enabling nutrition and sustainability analysis with **95% accuracy**.
- Utilized Gemini's **2.5 Flash** model for recommending missing nutrients based on past consumption history.

Custom Load Balancer | *GoLang, Net/HTTP, GoRoutines*

- Architected and implemented a high-performance **HTTP load balancer in Go**, using goroutines and channels to support **10k+ concurrent connections** with round-robin request scheduling.
- Built fault tolerance mechanisms (server health checks, automatic failover, retry logic), reducing downtime by **90% during backend failures** in test scenarios.